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ART UNIT	PAPER NUMBER
1772 1772	10

DATE MAILED: 03/31/00

Please find below a communication from the EXAMINER in charge of this application.

Commissioner of Patents

This letter responds to the telephone call made by Mr. Mark Montague on March 24, 2000, during which call the Examiner learned that the Office Action mailed on March 16, 2000 (Paper No. 9) contained all of the cited references, but was missing several pages of the Detailed Action. A copy Paper No. 9--without duplicate references--is enclosed.

THE PERIOD FOR RESPONSE TO PAPER NO. 9 IS RESET TO EXPIRE THREE (3) MONTHS FROM THE MAILING DATE OF THIS LETTER.

S. M. Nolan  
Patent Examiner  
Technology Center 1700

March 24, 2000  
[PTOL90]

# Office Action Summary

Application No.  
09/029,408

Applicant(s)

BAAR Et A;

Examiner

Sandra Nolan

Group Art Unit

1772



☐ Responsive to communication(s) filed on \_\_\_\_\_

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1035 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claim

☒ Claim(s) 1-59 is/are pending in the applicat

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-59 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some\* ☒ None of the CERTIFIED copies of the priority documents have been  
☒ received.

☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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## **DETAILED ACTION**

### ***Preliminary Amendment***

1. The Preliminary Amendment dated October 1, 1998 (Paper No. 7) has been entered.

### ***Information Disclosure Statement***

2. The information disclosure statement submitted on March 6, 1998 has been considered. A copy of the initialed citation form is enclosed.

### ***Summary of Claims***

3. This application contains fifty nine (59) claims. They can be summarized as follows:

Claim 1, an independent claim, covers a process for making molded bodies with a barrier layer from a composite baked from a mass containing biodegradable fiber, water and starch via the steps of: employing long and short fiber(s) (bundles) having a length of 0.5 mm to 50 mm; and impregnating with cellulose acetate (propionate) without softeners.

Claim 2, an independent claim, covers a process for making molded bodies with a barrier layer from a composite baked from a mass containing biodegradable fiber and starch via the steps of: employing long and short fiber(s) (bundles) having lengths of 0.5 mm to 50 mm; and coating with a foil based on polyester, polyester polyamide or polylactic acid to yield a boundary layer.

Claim 3 depends on claim 2 and calls for no softeners when forming the boundary layer.

Claim 4 depends on claim 2 and states the thickness of the foil (20 to 200 microns).

Claim 5 depends on claim 1 and says that the impregnation is carried out via spraying, casting or dipping.

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Claim 6 depends on claim 2 and calls for the use of vacuum heat sealing or compression heat sealing and/or heat treatment to apply the foil coating.

Claim 7 depends on claim 1 and recites the application of an elastic foil coating to the molded body without adhesion promoters.

Claim 8 depends on claim 2 and says that the foil is heated on its underside. Claim 9 depends on claim 2 and requires that the foil be prestretched before application. Claim 10 depends on claim 2 and mandates that the surface to be coated with the foil is preheated to the melting temperature of the foil.

Claim 11 depends on claim 1 and deals with applying a foil to the molded body which is still hot from the baking step and then conditioning the body. Claim 12 depends on claim 1 and recites 5 to 200 micron thickness in the boundary layer. Claim 13 depends on claim 1 and says that the boundary layer is on the inside or the outside of the body. Claim 14 depends on claim 1 and calls for the use of multiple impregnations. Claim 15 depends on claim 1 and recites the function of the barrier layer. Claim 16 depends on claim 1 and speaks to the function of the barrier layer. Claim 17 depends on claim 1 and describes the function of the barrier(s) relative to other layers. Claim 18 depends on claim 1 and calls for the inner coating to be thicker than the outer one. Claim 19 depends on claim 1 and states that the coating is applied in the baking apparatus. Claim 20 depends on claim 1 and limits the source of the heat used in the coating step. Claim 21 depends on claim 1 and recites the use of cellulose acetate and/or cellulose acetate propionate and a solvent as the impregnant.

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Claim 22 depends on claim 2 and calls for the coating to be trimmed after the molded body is removed from the baking mold.

Claim 23 depends on claim 1 and requires that the fiber be pulped or defibrated. Claim 24 depends on claim 1 and says that the fiber is waste paper having certain constituents. Claim 25 depends on claim 1 and mandates that the fiber be made from biodegradable fibers or fiber bundles. Claim 26 depends on claim 25 and recites the length of the fiber (bundles). Claim 27 depends on claim 1 and stipulates that the starch used is native, pregelatinized and/or modified starch. Claim 28 depends on claim 1 and recites the ratio of starch to fiber in relation to the weight of the fiber in the mass. Claim 29 depends on claim 1 and recites the amount of water in the mass. Claim 30 depends on claim 27 and sets out the relative amounts of various starches. Claim 31 depends on claim 1 and refers to the proportion of starch to water in the mass, with the water being added with the pregelatinized starch in the mass. Claim 32 depends on claim 1 and set out the proportions of fiber, starch and water in the mass. Claim 33 depends on claim 27 and states that the amount of certain starches is within certain limits. Claim 34 depends on claim 1 and requires that the fiber-containing raw material be comminuted and broken down in the presence of water and starch, and then the mass is formed and baked. Claim 35 depends on claim 1 and calls for the fiber-containing raw material to be comminuted with water and broken down later in the presence of starch, then the mass is formed and baked. Claim 36 depends on claim 1 and requires that the mass be metered before baking. Claim 37 depends on claim 1 and calls for analysis and grading of the fiber length and starch proportion after comminution. Claim 38

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depends on claim 1 and mandates that the native starch be added “partially already” during comminution of the fiber raw material. Claim 39 depends on claim 1 and calls for some of the starch to be added to the fiber raw material during comminution and/or during drying and/or equalizing mixing and kneading as native starch and/or modified starch and/or pregelatinized starch. Claim 40 depends on claim 27 and calls for the use of native starch/filler premix in a mixture of native and pregelatinized starches. Claim 41 depends on claim 27 and says that the pregelatinized starch is added to the mixing and kneading process when the viscous mass is formed.

Claim 42 depends on claim 1 and states that the viscous mass uses fiber raw material of different grades and lengths. Claim 43 depends on claim 1 and calls for heating the mass before molding it. Claim 44 depends on claim 1 and describes the operation of the baking plates in the mold. Claim 45 depends on claim 1 and recites the controlled discharge of steam from the mold during the baking process. Claim 46 depends on claim 45 and calls for the discharge of steam is controlled as to time, location, and/or internal pressure. Claim 47 depends on claim 1 and defines the lengths of fibers and bundles of same in thick-walled and/or large area bodies.

Claim 48, an independent claim, recites a molded body made from certain length fiber, starch, and water using a process that make such bodies with a cellulose acetate-containing barrier layer, via mixing, baking and impregnating steps, wherein the molded body has a boundary layer of cellulose acetate-containing material thereon or has a foil of polyester, polyester amide or polylactic acid coated thereon.

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Claim 49 depends on claim 48 and mandates that the body is covered on all sides. Claim 50 depends on claim 49 and describes the fiber lengths used in thick-walled and/or large area bodies. Claim 51 depends on claim 48 and recites the ratio of fiber to starch in the body. Claim 52 depends on claim 48 and requires the use of "a proportion of" pregelatinized starch or modified starch. Claim 53 depends on claim 48 and states that the body contains a mix of long, loose fibers and short, individual fibers.

Claim 54, an independent claim, sets forth a molded body comprising:

biodegradable fibers of various lengths, starch and water, produced using a process that gives the bodies a polyester, polyester amide or polylactic acid barrier layer via mixing the three components in a mass, baking it, and molding it, wherein the body has a boundary coating that is cellulosic or is a foil of one of the three recited barrier polymers.

Claim 55 depends on claim 54 and requires that the body be covered on all sides. Claim 56 depends on claim 55 and describes the variety of fibers used to make the body. Claim 57 depends on claim 54 and recites the proportion of fiber to starch. Claim 58 depends on claim 54 and calls for "a proportion of" pregelatinized starch or modified starch. Claim 59 depends on claim 54 and mandates the use of a mix of long loose fibers and short, individual fibers.

***Claim Rejections - 35 USC § 112***

4. Claims 1, 7, 11, 17, 38, 39, 46, 48, 52, 54, and 58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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In claim 1, the concept of "impregnation with a ... layer" is confusing.

Claim 7 recites the limitation "the . . . foil coating" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim or in claim 1 from which it depends.

Claim 11 is confusing. The phrase "boundary layer formed by impregnation or a liquid-tight barrier layer" makes little sense. Is the boundary layer formed by itself?

Claims 17, 39, and 46 are indefinite for reciting "and/or". It is not possible to ascertain the coverage for claims that recite features which are used in combination or alternatively.

Claim 38 is indefinite for reciting "partially already". What does the phrase mean?

In claims 48 and 54, Applicants appear to be claiming their impregnation/laminaing concept in both composition and process terminology.

Claims 52 and 58 are rejected because the phrase "a proportion of" does not properly define an amount of starch.

***Claim Rejections - 35 USC § 103***

5. Claims 1, 5, 7, 11-21, 23-48 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer et al (US 5,288,318) in view of Pommier et al (US 5,039,378) or Arnold et al (WO 95/20628).

Mayer et al show cellulose acetate binders with starch, and agricultural fillers in the production of biodegradable molded articles having high strength and water resistance (abstract). They do not teach using mixtures of short and long fibers.

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Pommier et al teach packaging materials containing a layer of short and long fibers that are bound using a starch binder (see claims 1 and 8). The binder is added in an aqueous dispersion (col. 5, line 30). Pommier et al's composites would be inherently biodegradable because of the identity of their ingredients with those of Arnold et al. They do not disclose cellulose acetate.

Arnold et al disclose the production of biodegradable moldings from fibers and fiber bundles of various lengths that are bound using water and starch (abstract). They do not disclose a cellulose acetate binder.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the biodegradable fiber/starch composites of Pommier et al or Arnold in the process of Mayer et al in order to produce biodegradable molded plastics having water resistance and high strength.

In the absence of objective evidence to the contrary, the thickness and location of the layers, as well as the nature of the starches and the details of the molding, coating/impregnating and trimming operations employed are deemed conventional.

6. Claims 1-4, 7-9, 22, and 48-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kharas et al (CA 2057669A) or Suskind (US 5,540,962) in view of Pommier et al or Arnold et al.

Kharas et al show the lamination of a film of polylactide onto the surface of the cellulosic fiber web to produce a biodegradable web that is easily recycled. They do not show the use of fibers of various sizes.

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Suskind teaches a biodegradable paperboard container (abstract) that is made from waste paper (col. 1, lines 37+) that is covered with a film of polyester (col. 13, lines 50+) or coated with a polylactide coating (claim 4). He does not teach that his paper waste is fibrous or that it has a variety of sizes.

Pommier et al and Arnold et al are discussed above.

It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the biodegradable fiber/starch composites of Pommier et al or Arnold et al in the processes of Kharas et al or Suskind in order to produce webs or packages that are biodegradable and recyclable.

In the absence of objective evidence to the contrary, the thickness and location of the layers, as well as the nature of the starches and the details of the molding, and coating/-impregnating and trimming operations employed are deemed conventional.

7. Claims 2-4, 6, 8-10, 22 and 48-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kharas et al, Suskind, Pommier et al and Arnold et al, as applied to claims 1-4, 7-9, 22, and 48-53 above, and further in view of Tanner et al (US 5,213,858).

Kharas et al, Suskind, Pommier et al and Arnold et al are discussed above.

Tanner et al shows the application of a heat sealable interior barrier layer onto paperboard composite packages (see claims 22 and 23). Their laminates are covered on all sides (col. 3, lines 56+ and Figures 1-4). They do not show the use of the Applicants' fiber/starch composites.

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It would have been obvious to one having ordinary skill in the art at the time that the invention was made to employ the heat sealable barrier layer of Tanner et al to coat appropriate surface(s) of packaging composites made by the process suggested by the combination of Kharas et al, Suskind, Pommier et al and Arnold et al.

In the absence of objective evidence to the contrary, the thickness and location of the layers, as well as the nature of the starches and the details of the molding, and coating/-impregnating and trimming operations employed are deemed conventional.

*Conclusion*

Any inquiry concerning this communication should be directed to Sandra M. Nolan, whose telephone number is (703) 308-9545. The examiner can normally be reached on Monday through Thursday from 7:00 am to 4:00 pm. She can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ellis P. Robinson, can be reached on (703) 308-2364. The fax phone number for the art unit is (703) 305-5408. The telephone number for the receptionist is (703) 308-0661.



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